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# SUMMARY OF PROCEEDINGS OF AN EXPERIMENTAL DREDGE DISPOSAL WORKSHOP FOR MISSISSIPPI SOUND

July 24-25, 1978  
Mobile, Alabama

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EXPERIMENTAL DREDGE DISPOSAL WORKSHOP  
FOR MISSISSIPPI SOUND

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HELD ON

JULY 24-25, 1978

AT

MOBILE, ALABAMA

Edited by

Stanley Hecker

Mississippi-Alabama Sea Grant Consortium  
P.O. Drawer AG  
Ocean Springs, Mississippi 39564

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Finally, the cooperation of the Mississippi Marine Resources Council, the Mobile District of the U.S. Army Corps of Engineers and the Mississippi-Alabama Sea Grant Consortium made this workshop possible.

Summary of Proceedings of an Experimental Dredge  
Disposal Workshop for Mississippi Sound

Abstract

This paper summarizes the proceedings of a workshop held on July 24-25, 1978 which was jointly sponsored by the Mississippi-Alabama Sea Grant Consortium, Mississippi Marine Resources Council and the Mobile District United States Army Corps of Engineers. The objective of the workshop was to identify available scientific information which might be used in planning an experimental dredge disposal program for Mississippi Sound and gaps in that information.

### Introduction

A series of discussions between the Mobile District U.S. Army Corps of Engineers and the Mississippi-Alabama Sea Grant Consortium were held in early 1978 in attempts to identify some of the scientific information needs which might assist the Corps of Engineers in their planning an Experimental Dredge Disposal Program for Mississippi Sound. Those discussions led to the conclusion that a workshop would be the most effective means of identifying currently available scientific information on the Sound and that information which would be available in the foreseeable future.

Accordingly a workshop was planned for July 24 and 25, 1978, at which selected members of the scientific community, with particular expertise in the natural processes in Mississippi Sound and adjacent waters, might exchange views and information and provide recommendations for the Corps' planning.

The objectives of the workshop, developed through consultation and discussion were:

To develop a listing of physical, meteorological, chemical, geological and biological information currently available on the Mississippi Sound and the sources of that information.

To develop a listing of gaps in the available information and other supporting information needs.

Identification of those persons or institutions most capable of filling the information gaps.

A listing of instrumentation, ships and equipments necessary in a data collection program which might be undertaken to fill the information gaps.

The extensive discussions in all disciplines, which addressed the various objectives, made it impractical to publish a complete transcript of the workshop proceedings. Thus a summary of proceedings was decided upon. Due to its condensed form and the editorial interpretations contained in a summary, certain points may not receive the same treatment which might be given by other editors. It is hoped, however, that this summary provides the substance of the Experimental Dredge Disposal Workshop and that the series of recommendations and list of references will be of value to future readers of this document.

The reference list was compiled from information provided by workshop participants and other interested persons. It is as complete a list of references on Mississippi Sound that could be compiled from the information provided. In those cases where omissions are noted the editor can but apologize for the shortcoming and request that he be advised of missing items for inclusion in a future addendum.

### Discussion

The workshop was convened at 8:30 a.m. on July 24, 1978.

Dr. James I. Jones, Director, Mississippi-Alabama Sea Grant Consortium explained to the participants that the primary purpose of the workshop was to produce some distinct related products. First to identify historical knowledge of the Northern Gulf of Mexico, those portions of that information that may be useful in evaluating the effects of Corps of Engineers dredging activity and where the information is located. Appendix A is a listing of historical information compiled from information provided by the workshop participants and other interested persons. The Mississippi-Alabama Sea Grant Consortium and the editor of this summary can not assume responsibility for the completeness of appendix A due to the variety of sources of the information contained therein.

Next to evaluate the scope of the historical information and determine the specifics of information which may be lacking. The lacking information determined from the discussions was to be prioritized in the order recommended by the workshop participants, based on their knowledge of the scientific needs to properly evaluate the system as it presently exists and any effects which may accrue from the planned dredging program. Finally, a recommendation was to be provided which would list the types and extent of sampling which might provide the data whose analysis could be used to evaluate the Mississippi Sound system and monitor its condition.

At this point due to the small size of the group, the decision was made to conduct an interdisciplinary workshop to permit a free exchange of views and information by all participants.

At the outset, Mississippi Sound, shown in Fig. 1, was identified as the primary area of interest, encompassing the waters from Lake

Borgne on the west to Pass Aux Herons on the east bounded by and including the barrier islands on the south and extending into the tributary rivers up to the extent of tidal influence on the north. The secondary area of interest included the waters of Mobile Bay and Lake Borgne and the continental shelf waters from the barrier islands to the edge of the continental shelf at the 200 meter contour.

The discussions of the objective to identify available information began with physical and hydrographic information followed by chemical, geological and biological information. Appendix A contains the listing of available information by discipline. Sections are included containing references in Biology, Chemistry, Engineering, General Information, Geology, Physical Oceanography, Hydrography, Meteorology and Socio-Economic/Law. The greatest volume of information was found to be available in the biological discipline with a substantially lesser amount of information in geology and extremely limited information in chemical and physical and hydrographic disciplines.

The next phase of the workshop identified gaps in the available information and established priority of need of that information. It should be borne in mind that in the following priority listing, the recommendation of the workshop was that all items of the same priority be undertaken concurrently. No one item of the same priority level enjoys a higher precedence than any other. It is interesting that the unanimous concensus of the workshop was that all physical/hydrographic information needs were categorized in the highest priority. This opinion was based on the fact that the physics and hydrography would identify the primary driving mechanisms for the entire system.

The listing that follows contains the recommendations of the workshop for information needed to fill the data gaps, by discipline and priority within the discipline. Priority 1 is the highest and 5 the lowest.

## Physical/Hydrographic Information Gaps

### Priority 1

- A. High order bathymetric survey of Mississippi Sound, Mobile Bay and adjacent continental shelf.
- B. Synoptic meteorological monitoring throughout Mississippi Sound.
- C. Accurate river gauging at the point of discharge into Mississippi Sound.
- D. Synoptic measurement of salinity, temperature, dissolved oxygen and current magnitude and direction at surface, mid-depth and bottom throughout Mississippi Sound and adjacent continental shelf.
- E. Long term sea surface elevation records throughout Mississippi Sound.
- F. Short period wave analysis in Mississippi Sound and adjacent continental shelf.
- G. Continuous long term tidal gauging in Mississippi Sound.

## Chemistry Information Gaps

### Priority 1

- A. Water quality data throughout Mississippi Sound and Mobile Bay.
- B. Chemical analysis of surface sediments and shallow bottom cores throughout Mississippi Sound and Mobile Bay.
- C. Trace element distribution in sediments.

### Priority 2

- A. Hydrocarbon data throughout Mississippi Sound and Mobile Bay including entire water column and sediments to five meters below the bottom. Data should include aliphatic and aromatic hydrocarbons.

- B. Synoptic nutrient data collection using most current state of the art collection and analytical techniques.
- C. Post dredging trace element monitoring.

#### Priority 3

- A. Determination of heavy metal distribution.
- B. Determination and identification of types of pesticide runoff.

#### Priority 4

- A. Determination of radionuclide distribution.

### Geology Information Gaps

#### Priority 1

- A. Complete bottom sediment analysis and mapping of entire Sound.

#### Priority 2

- A. Complete data collection and prepare a geological history of wetlands adjacent to Mississippi Sound.

#### Priority 3

- A. Conduct an analysis of the littoral drift on the barrier islands and the mainland. Include study of inlet migration.
- B. Investigate use of dredge spoil for barrier island beach stabilization.

#### Priority 4

- A. Determine relationship between nearshore currents and erosion.

#### Priority 5

- A. Develop a statistically reliable sediment coring grid.

- B. On the basis of statistical information, establish a coring network to determine sediment type and geochemistry of the sediments. Cores should be taken to a depth of approximately two meters below the bottom.
- C. Identify the type and origin of suspended material entering Mississippi Sound.

### Biology Information Gaps

#### Priority 1

- A. Population dynamics of economically important species such as: mullet, croaker, spotted seatrout, white trout, etc.
- B. Larval studies of economically important fish and shellfish to include but not be limited to: larvae identification, identification of nursery areas, effect of sediments, effects of current on larvae, effects of chemical changes in the water column on larvae.
- C. Life history studies of target species.
- D. Assessment and monitoring of recruitment of critical species into nursery areas.
- E. Reliable sport and commercial fishery statistics.

#### Priority 2

- A. Assessment of benthic communities and habitats.
- B. Distribution of infauna, epifauna and meiofauna and their relationship to each other in the biomass.

#### Priority 3

- A. Delineation of critical habitats.
- B. Frequency of occurrence of endangered species inshore, near-shore and offshore.

#### Priority 4

- A. Assessment of destruction, creation, alteration of nursery areas. Effects of spoil deposition on fishing grounds and access to fishing grounds.
- B. Long term study of impact of dredging on biota.

#### Priority 5

- A. Distribution and productivity of zooplankton and phytoplankton.
- B. Primary productivity measurements.
- C. Inland water project impact on freshwater flow and attendant impact on estuarine biota.
- D. Location and classification of fishing reefs.
- E. Assessment of value per acre of marshland.

After identification of the data gaps in each of the disciplines the discussion turned to identification of persons, institutions, equipment and facilities which might be needed to fill the information gaps. As previously indicated this was to include both data collection and analysis. The range of needs for a sampling program or group of sampling programs to gather the data precluded identification of specific equipments, platforms and people to undertake the work. Institutions that might participate were rather broadly identified. Typically those that might be invited to participate in this information generation might be:

Dauphin Island Sea Lab

Gulf Coast Research Laboratory

National Data Buoy Office

National Oceanic and Atmospheric Administration

National Ocean Survey

National Weather Service

Naval Oceanography Command

State Geological Surveys

U.S. Army Corps of Engineers

U.S. Fish and Wildlife Service

U.S. Geological Survey

U.S. Naval Oceanographic Research and Development Activity

The actual sampling program scope would necessarily be determined for each of the items listed in the information gaps.

#### Comments and Recommendations

The general concensus of the workshop was that a general lack of comprehensive baseline information existed for Mississippi Sound. Work that had been done was generally fragmented since past efforts had apparently responded to specific requests for information within limited geographic bounds.

The following recommendations, beyond the prioritization and identification of information gaps, were prepared by the workshop participants:

All data collected should be analyzed as rapidly as possible and the results and interpretations published.

At least 25% of funds allotted for projects related to filling information gaps should be set aside for synthesis of data.

Data collection and analysis undertaken to fulfill the information gaps should be viewed as multidisciplinary programs.

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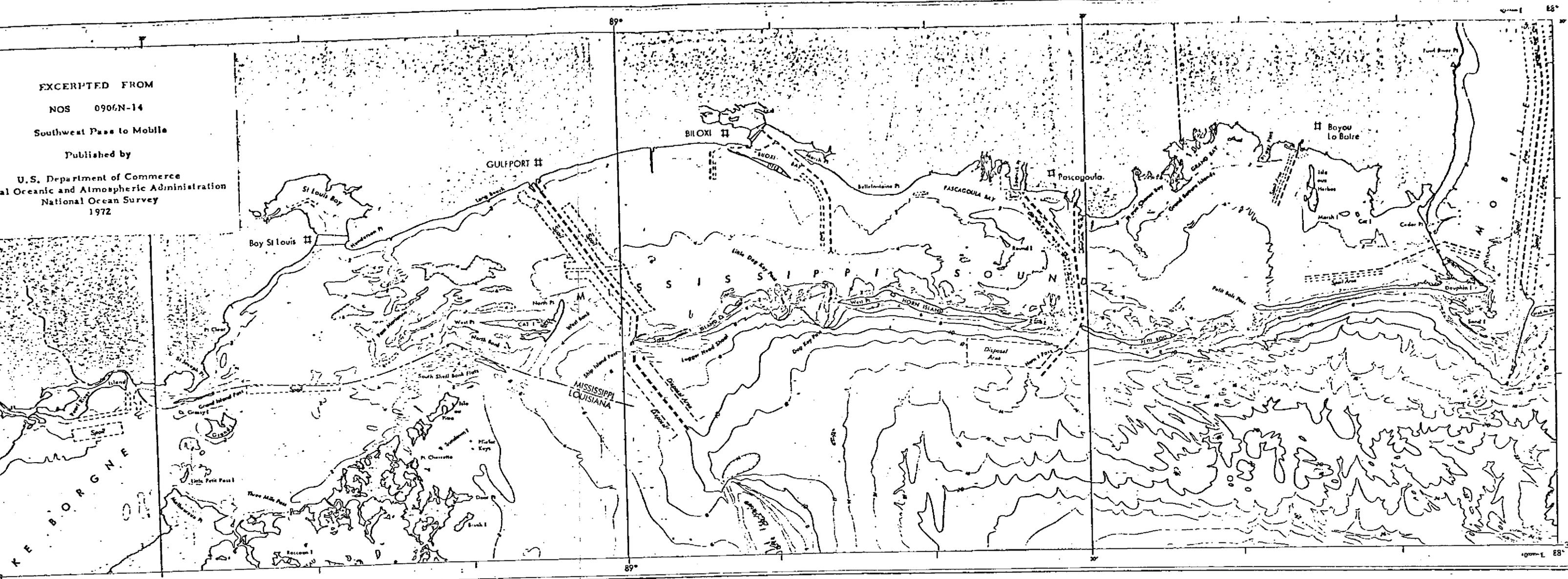


Figure I - Area of Interest



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## APPENDIX A

Biology

Chemistry

Engineering

General

Geology

Physical Oceanography/  
Hydrography/Meteorology

Socio-Economic/Law

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